

SECTION 260553 – ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Wire and cable identification.
- B. Pullbox & Junction Box Identification
- C. Electrical distribution & utilization equipment identification.
- D. Emergency and Standby Power receptacle identification.

PART 2 - PRODUCTS

2.1 WIRE AND CABLE IDENTIFICATION

- A. Intermediate Locations:
 - 1. Wires and cable labels shall be white, thermal transfer, halogen-free, flame-retardant marker plates (sized to accommodate three lines of text) permanently affixed to the associated cable with UV-resistant plastic wire ties. Labels shall be Panduit #M200X/300X series or equal.
- B. Circuit/Cable Termination Locations:
 - 1. Wires and cable labels shall be non-ferrous identifying tags or pressure sensitive labels unless noted otherwise.

2.2 ELECTRICAL DISTRIBUTION & UTILIZATION EQUIPMENT IDENTIFICATION

- A. Labels on electrical distribution & utilization equipment shall be black-on-white engraved Bakelite nameplates permanently affixed to the equipment with rivets or silicone adhesive unless noted otherwise.
- B. Labels on electrical distribution equipment fed from emergency or legally-required standby sources (such as emergency generators) shall be white-on-red engraved Bakelite nameplates permanently affixed to the equipment with rivets or silicone adhesive.

2.3 EMERGENCY AND STANDBY POWER RECEPTACLE IDENTIFICATION

- A. Receptacles fed from emergency or standby power sources (such as emergency generators) shall be provided with factory-marked engraved coverplates as follows:
 - 1. Emergency System source: Red engraved lettering to read “EMERGENCY”.
 - 2. Legally-Required or Optional Standby Generator source:
 - a. If only part of facility is fed with generator backup: Black engraved lettering to read “FED FROM GENERATOR”.
 - b. If entire facility is fed with generator backup: No “...GENERATOR...” label required.

PART 3 - EXECUTION

3.1 GENERAL

- A. Any proposed deviation in identification methods and materials from those described herein shall be submitted to Architect for review and comment prior to installation.
- B. Contractor shall provide all labeling or identification required by applicable local, state and national codes. These specifications do not intend to itemize all code-required labeling or identification requirements.
- C. All labels/identification shall be positioned such as to be readable from the normal perspective without adjusting wiring/cables/labels. For example, labels/identification of wires/cables within cable trays shall be positioned to point towards the viewer (typically downward for overhead cable trays, or upward for cable trays within trenches).
- D. All labels/identification (except for handwritten labels on concealed pullbox/junction box covers as noted below) shall be typewritten/printed/engraved in a neat, workmanlike, permanent, legible, consistent and meaningful manner. Labels shall not be handwritten unless specific approval is granted by engineer.

3.2 WIRE AND CABLE IDENTIFICATION

- A. General:
 - 1. Where cabling is exposed (such as within cable trays), provide two wire ties per cable (one on either end of marker plate to provide a flush installation). Where cabling is concealed (such as within pullboxes/wireways), one wire tie per cable will be acceptable.
- B. Intermediate Locations:
 - 1. Thermal transfer labels shall be securely fastened to all wiring and cabling in the following locations:
 - a. Wireways
 - b. Pullboxes/Junction boxes larger than 4-11/16"
 - c. Pullboxes/Junction boxes through 4-11/16" where wires and cables are not easily identifiable via the color coding and box labeling
 - d. Vaults & Manholes
 - e. Approximately every 50 feet within cable trays (especially at locations where cables exit or diverge). Labels within cable trays shall be grouped (rather than being pre-labeled on cables and pulled into cable trays).
 - f. Other similar intermediate locations.
 - 2. Labels shall be stamped or printed with the following data so that the feeder or cable can be readily identified and traced:
 - a. From where the circuit originates (including panel designation and circuit number):
 - 1) Ex: "FROM: PP-A CIR. 3 (IN MAIN ELEC ROOM)"
 - b. To where the circuit extends (using the common name of the equipment):
 - 1) Ex: "TO: RTU-6 (ON ROOF)"
 - c. The purpose of the circuit:
 - 1) Ex: "POWER"
 - d. The set number (If parallel power feeds are used).
 - 1) Ex: "SET NO. 3 OF 4"

C. Circuit/Cable Termination Locations:

1. Where multiple termination points exist within a circuit origination point (panelboard, switchboard, MCC, starter, etc.) or other similar circuit endpoint (control panel, etc.), labels shall be securely fastened to all ungrounded and neutral conductors to clearly identify the terminal and/or circuit number associated with each conductor. For example, within lighting panels, each phase and neutral conductor shall be labeled near the terminals at a clearly visible location with the associated circuit number(s), so that if all conductors were unterminated, the labels would clearly indicate which conductor was associated with each circuit.

D. Refer to Specification Section 260519 for all color-coding requirements of wires and cables.

3.3 PULLBOX & JUNCTION BOX IDENTIFICATION

A. Concealed pullboxes/junction boxes:

1. Front surface of all pullbox/junction box covers in concealed areas (such as above lay-in ceilings) or within mechanical/electrical rooms (and other similar areas where appearance of boxes is not an issue) shall be neatly marked with the ID of circuits/cables contained with permanent black marker on cover of box (Ex: "RP-1A Cir. 1, 2 & 3"). Additionally, front surface of box shall be painted red where box contains fire alarm system cabling.

B. Exposed pullboxes/junction boxes:

1. Interior surface of all pullbox/junction box covers in exposed areas shall be labeled "Power", "Telecommunications", "Fire Alarm" or with other similar general text neatly with permanent black marker to indicate function of box. Circuit/cable labeling within box (see above) shall identify specific cables contained. Additionally, interior surface of cover shall be painted red where box contains fire alarm system cabling.

C. Where pullboxes/junction boxes are named on contract documents (Ex: "PULLBOX #3"), an engraved nameplate shall be installed on the front surface of the box to identify the name.

3.4 ELECTRICAL DISTRIBUTION & UTILIZATION EQUIPMENT IDENTIFICATION

A. General:

1. All new and existing equipment modified by this project shall include arc-flash warning labels in accordance with NEC article 110.16.

B. All Panels, Motor Control Centers, Switchboards, Switchgear, Transformers, Etc.:

1. Engraved nameplates identifying name of equipment, nominal voltage and phase of the equipment and where the equipment is fed from shall be installed on front surface of all panels, motor control centers, switchboards, switchgear, transformers, etc.:
 - a. Ex: First Line: "NAME: RP-A", Second Line: "120/208V-3Ø-4W", Third Line: "FED FROM: PP-A CIR. 4 (IN MAIN ELEC ROOM)"
2. Refer to Panelboard Specification Sections for additional labeling requirements (circuit directory cards, permanent circuit labels, permanent circuit numbers, etc.) required inside panelboards.

C. Safety/Disconnect Switches and Utilization Equipment (HVAC Equipment, Pumps, Powered Valves, Control Panels, Starters, Etc.):

1. Engraved nameplates identifying equipment being fed and where the equipment is fed from shall be installed on front surface of all disconnect switches (including both visible blade type switches and toggle-type switches) and on utilization equipment (where not clearly identified by immediately adjacent local disconnect switch):
 - a. Ex: First Line: "RTU-6", Second Line: "FED FROM: PP-A CIR. 5"
2. Where safety/disconnect switches are installed on the load side of variable frequency drives, the safety/disconnect switch shall be furnished with an additional engraved nameplate to read: "WARNING: TURN OFF VFD PRIOR TO OPENING THIS SWITCH".
3. Safety/Disconnect switches feeding equipment that is fed from multiple sources (such as motors with integral overtemperature contacts that are monitored via a control system) and Utilization Equipment fed from multiple sources shall be furnished with an additional BLACK-ON-YELLOW engraved nameplate to read: "WARNING: ASSOCIATED EQUIPMENT FED FROM MULTIPLE SOURCES – DISCONNECT ALL SOURCES PRIOR TO OPENING COVER".

D. Emergency Systems:

1. A sign shall be placed at the service entrance equipment (and at any remote shunt trip operators, or similar, for service equipment) indicating the type and location of on-site emergency power sources (such as generators, central battery systems, etc.) per NEC requirements.
2. All boxes and enclosures (including transfer switches, generators, power panels, junction boxes, pullboxes, etc.) dedicated for emergency circuits shall be permanently marked with white-on-red engraved nameplates so they will be readily identified as a component of an emergency circuit or system.
3. Where an Essential Electrical System (EES) is installed, all enclosures, raceways and equipment that are components of the EES shall be readily identified as such. Raceway shall be identified at intervals not exceeding 25 ft.

E. Services:

1. All Service Equipment:
 - a. Engraved nameplates identifying maximum available fault current, including date the fault current calculation was performed, in accordance with NEC article 110.24.
 - 1) Ex: First Line: "AVAILABLE FAULT CURRENT: 16,154 AMPS", Second Line: "DATE CALCULATED: JULY 8, 2013"
 - b. All service entrance equipment shall be clearly labeled as being service entrance rated.
2. Where a building or structure is supplied by more than one service (or any combination of branch circuits, feeders and services), a permanent plaque or directory shall be installed at each service disconnect location denoting all other services, feeders & branch circuits supplying that building or structure and the area served by each, per NEC requirements.

F. Generators:

1. Generators shall be labeled with engraved nameplates identifying name of equipment.

3.5 EMERGENCY AND STANDBY POWER RECEPTACLE IDENTIFICATION

- A. Receptacles fed from emergency or standby power sources (such as emergency generators) shall be provided with factory-marked engraved coverplates as described above.

3.6 OTHER IDENTIFICATION

- A. Factory-engraved coverplates identifying functions of light switches and other similar devices shall be installed where so required by plans/specifications.

END OF SECTION 260553